

Claims:

1. Production system, in particular machining line for the production and/or machining of work pieces, components or the like, comprising different module types designed as system module for machining and conveying, which can be connected, respectively combined, with each other in any number, and a process module, respectively a logistics module, being provided as system modules.
2. Production system according to claim 1, **characterised in that** the production system is formed modularly, on the one hand, by means of one or more process modules which machine(s) on the work pieces and, on the other hand, is formed by at least one logistics module, and the logistics module provides the conveying of the work pieces, the logistics module as a pre-assembled system module supplying a number of process modules with work pieces and disposes of them, and the process module as system module can be connected with the logistics module.
3. Production system according to claim 1, **characterised in that** the process module has a unit for supplying with, respectively disposing of, work pieces which takes the work piece from the logistics module extending along the process module into the process module and, after that, conveys it again to the logistics module.
4. Production system according to claim 1, **characterised in that** the process module is either arranged directly at the logistics module or is supplied with work pieces, respectively the work pieces are disposed of, via a work piece supplying unit, respectively a work piece

disposing unit, and only the logistics module provides a conveying of the work pieces to the process modules.

5. Production system according to claim 1, **characterised in that** the logistics module (1) has a conveying unit (1/1) for conveying the work pieces (3) within the system.
6. Production system according to claim 1, **characterised in that** the logistics module (1) has a conduit unit for the conveying of energy and for the media necessary for the process for the supplying of the process modules (2) as well as for their disposal.
7. Production system according to claim 1, **characterised in that** the logistics module (1) has at least one conveying module (1/1).
8. Production system according to claim 1, **characterised in that** the logistics module (1) is formed by a stand which has, arranged tier-like, at least two conveying modules (1/1), where, below the conveying modules (1/1) a disposal module (1/3), respectively a part of it, is arranged, for example a disposal channel for draining cooling liquid, respectively lubricating stuff, chips or the like, and, in another level, defined by the stand, the supplying module (1/2), respectively a part of it, for example pipes for cooling water, process gases, cables or the like is arranged.
9. Production system according to claim 1, **characterised in that** a branching module (1/4) is provided as system module which serves for connecting several logistic modules (1) angular with each other at the same level and/or at different levels.

10. Production system according to claim 1, **characterised in that** the logistics module (1) has at least one conveying module (1/1) and on the conveying module(s) (1/1) branching modules (1/4) are arranged corresponding for a transfer, respectively take over, to the process modules (2).
11. Production system according to claim 1, **characterised in that** a system module is provided as branching module (1/4) which serves for connecting several logistics modules (1) angular with each other at the same level and/or at different levels, and the branching module (1/4) comprises loading and unloading modules and/or packing or unpacking modules, respectively stations.
12. Production system according to claim 1, **characterised in that** a branching module (1/4) is provided as system module which serves for connecting several logistics modules (1) angular to each other at the same level and/or at different levels, and the branching module (1/4) is formed by at least one distributing point each, rotational station each, lifting stations for distributing the work pieces (3), respectively pallets, in different conveying levels and transmitters, respectively translators or the like.
13. Production system according to claim 1, **characterised in that** the production system (1) has a supplying module (1/2) as system module which guarantees the supply of the process modules (2) with energy and media.
14. Production system according to claim 1, **characterised in that** the production system has a disposal module (1/3) as system module for collecting and, if necessary,

recycling, respectively removing, process wastes and used materials.

15. Production system according to claim 1, **characterised in that** the production system has an operating module formed by a supplying module (1/2) and a disposal module (1/3), which takes over supply as well as disposal tasks of the production system as a combining system module.

16. Production system according to claim 1, **characterised in that** the system modules are pre-assembled and designed in such a way that they can be transported as a unit without any or with minimum effort for dismantling.

17. Production system according to claim 1, **characterised by** a logistics module (1), preferably with individual modular construction which is designed for

- the conveying of the work pieces within the system
- the supply of the process modules with energy and media
- the removal of process remains and materials out of the process modules
- the providing of data transfer media for the exchange of information and data within the system and
- the protection of persons against hazards like hazardous movements, noise, burns, respectively scalds, or the like.

18. Production system according to claim 1, **characterised by** a logistics module (1) provided with interfaces for connecting, respectively joining, of at least one process module (2) and/or connecting of at least one

other logistics or conveying module (1/1), or of supplying modules (1/2), disposal modules (1/3) and branching modules (1/4).

19. Production system according to claim 1, **characterised in that** the process module (2) is designed by machines for machining work pieces, for example for cutting, transforming, for assembling, respectively separating, by testing stations, assembling stations, adjustment stations, surface treatment stations, packing or unpacking stations, identification stations for identifying work pieces, stations for loading and unloading pallets and cleaning stations, preferably with modular-like construction.
20. Production system according to claim 1, **characterised in that** the production system (1) has a supplying module (1/2) as system module which guarantees the supply of the process modules (2) with energy and media, and the supplying module (1/2) is designed in such a way that it recycles and/or provides current, liquids, process gases, gases and/or gases under pressure, respectively other media needed in the process modules (2).
21. Production system according to claim 1, **characterised in that** the production system (1) has a supplying module (1/2) as system module which guarantees the supply of the process modules (2) with energy and media, and the supplying module (1/2) takes over centrally the supply of the media needed in the process modules (2) at least for a part of the process modules (2), preferably for all process modules (2) in the production system simultaneously.

22. Production system according to claim 1, **characterised in that** the production system has a disposal module (1/3) as system module in order to collect and, if necessary, recycle, respectively remove, process wastes and used materials, and a disposal module (1/3) is provided which serves centrally for the disposal of the wastes, used materials for at least of a part of the process modules (2) or the production system altogether, and, if necessary, the disposal module realises a central collection and recycling of these materials.
23. Production system according to claim 1, **characterised in that** the production system has a disposal module (1/3) as system module in order to collect and, if necessary recycle, respectively remove process wastes and used materials, and the disposal module (1/3) collects, recycles and feeds again the production cycle of the production system with at least a part of the used materials, cooling agents, process gases and the like.
24. Production system according to claim 1, **characterised in that** the production system has a disposal module (1/3) as system module in order to collect and, if necessary recycle, respectively remove process wastes and used materials, and a disposal module (1/3) is provided which carries out centrally for several, preferably all, process modules (2) the sucking of steam, fog, smoke or the like via a common central suction system.
25. Production system according to claim 1, **characterised in that** the logistics module (1) has at least one conveying module (1/1) and the conveying module (1/1) is defined by conveying lines like friction roller conveyors, running paths, conveyor belts, slide guides and the like.

26. Production system according to claim 1, **characterised in that** the logistics module (1) has at least one conveying module (1/1) and the conveying module (1/1) is defined by at least two or more conveyor lines which are arranged in tiers one above the other.
27. Production system according to claim 1, **characterised in that** the logistics module (1) has at least one conveying module (1/1) and the conveying module (1/1) is defined by at least two or more conveyor lines which are arranged one besides the other.
28. Production system according to claim 1, **characterised in that** the system module, in particular a supplying module (1/2), a disposal module (1/3) or an operating module has a sound absorbing housing which holds noise producing aggregates like compressors etc.
29. Production system according to claim 1, **characterised in that** the system module, in particular a supplying module (1/2), a disposal module (1/3) or an operating module, has a sound absorbing housing, which holds noise producing aggregates like compressors etc., and the housing has an air-conditioner, respectively a cooling for dissipating the heat produced by the aggregates.
30. Production system according to claim 1, **characterised in that** the production system (1) has a supplying module (1/2) as system module which guarantees the supply of the process modules (2) with energy and media, and the supplying module (1/2) contains components for a common supply of several, preferably all, process modules (2), like hydraulic aggregate, cooling-lubrication-agent aggregate, compressed air aggregate, aggregate for thermal stabilisation of the process modules, for

example by providing tempered water, gas supply aggregate, energy supply stations and switching stations, respectively aggregates.

31. Production system according to claim 1, **characterised in that** the production system (1) has a supplying module (1/2) as system module which guarantees the supply of the process modules (2) with energy and media, and a central energy supply, for example contact-free guided conductor rails with separating switches and tapped contact-free or guided by cables, is provided which is integrated in the supplying module(s) (1/2).
32. Production system according to claim 1, **characterised by** a common fire protection module, respectively system.
33. Production system according to claim 1, **characterised in that** the different part systems, respectively modules types, are carried out redundantly in particular within the supplying module (1/2).
34. Production system according to claim 1, **characterised in that** the process module has a logistics element, and the process module can be connected to the logistics element with the logistics module.
35. Production system according to claim 1, **characterised by** a central supplying module.
36. Production system according to claim 1, **characterised by** an integrated supplying and disposal module.
37. Production system according to claim 1, **characterised by** a common stand of the logistics module for a conveying module and a supplying, respectively disposal, module.

38. Production system according to claim 1, **characterised in that** the logistics module (1) has at least one conveying module (1/1), and the production system (1) has a supplying module (1/2) as system module which guarantees the supply of the process modules (2) with energy and media and, on the one hand, for each conveying module, and, on the other hand, for each of the supplying, respectively disposal, module, individual stands are provided.
39. Production system according to claim 1, **characterised in that** the process module has a supplying element which can be connected to the supplying module.
40. Production system according to claim 1, **characterised in that** the production system is designed as machining line.

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